The MPS-080917N-85 is a low noise, high dynamic range amplifier designed for ultralinear GSM, NMT-900 and ETACS receiver applications. The circuit is matched to 50 ohm and employs a single stage GaAs FET with internal matching to provide exceptional noise figure, 0.8 dB combined with extremely high IP3, +36 dBm. Typical applications are base station receivers, Tower mounted LNA's, smart antenna systems, picocell repeaters and receiver multi-couplers.

**Features**
- Very Low Noise 0.8 dB Typ.
- High +36 dBm Typ. IP3
- 13.5 dB Typical Gain
- 7.5 Volt Bias
- 26% High Power Added Efficiency

**Specifications**

**Electrical at 25°C, Vdd= 7.5 V, Zo= 50 Ω**

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Parameter</th>
<th>Min.</th>
<th>Typical</th>
<th>Max</th>
<th>Unit</th>
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<tbody>
<tr>
<td>Freq</td>
<td>Frequency Range</td>
<td>870</td>
<td></td>
<td>925</td>
<td>MHz</td>
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<tr>
<td>SSG</td>
<td>Small Signal Gain</td>
<td>12</td>
<td>13.5</td>
<td></td>
<td>dB</td>
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<tr>
<td>P1dB</td>
<td>P out at 1 dB Compression</td>
<td>+22.0</td>
<td></td>
<td>+36.0</td>
<td>dBm</td>
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<tr>
<td>IP3</td>
<td>Third-order Intercept</td>
<td>+33</td>
<td></td>
<td></td>
<td>dBm</td>
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<tr>
<td>NF</td>
<td>Noise Figure</td>
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<td>1.0</td>
<td></td>
<td>dB</td>
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<tr>
<td>VSWR</td>
<td>Input VSWR</td>
<td>2.0:1</td>
<td>2.5:1</td>
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<tr>
<td>ΔGOF</td>
<td>Gain Variation over Freq.</td>
<td>+/-0.2</td>
<td></td>
<td>+/-0.5</td>
<td>dB</td>
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<tr>
<td>ΔGOT</td>
<td>Gain Variation over Temp.</td>
<td>-.015</td>
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<td></td>
<td>dB/°C</td>
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<td>Idd</td>
<td>DC Current</td>
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<td>250</td>
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<td>mA</td>
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<tr>
<td>PAE</td>
<td>Power Added Efficiency</td>
<td>26</td>
<td></td>
<td></td>
<td>%</td>
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</tbody>
</table>

**Absolute Maximum Ratings**
- Maximum Bias Voltage 8.0 V
- Maximum Continuous RF Input Power 950 mW
- Maximum Peak Input Power 1400 mW
- Maximum Case Operating Temperature +85°C
- Maximum Storage Temperature -65°C to +150°C
**MPS-080917N-85**

870 to 925 MHz Low Noise Receiver Amplifier

Return Loss vs. Frequency

**Return Loss vs. Frequency**

**Outline Diagrams**

**Application Circuit**

INPUT

OUTPUT

- **Frequency (MHz)**: 850, 870, 890, 910, 930, 950
- **Return Loss (dB)**: -5, -10, -15, -20, -25, -30

- **Return Loss vs. Frequency**

- **Pin Connection**
  - 1: N/C
  - 2: N/C
  - 3: RF Input
  - 4: N/C
  - 5: N/C
  - 6: N/C
  - 7: N/C
  - 8: RF Output, Vdd
  - 9: N/C
  - 10: N/C
- **Case**: Ground

- **Parts**
  - C1: 100 pF Chip Capacitor
  - C2: .22 uF Capacitor
  - L1: 160 nH Printer or Wound Coil
  - CR1: 8.0 V Zener Diode
  - 50 Ω Microstrip Line

- **Printed or Wound Coil**

- **Microstrip Line**

- **Through**

- **GND**

- **085**

- **.990**

- **.250 SQ. .125**

- **.375**

- **.470**

- **.060 TYP .004+/-.001 TYP**

- **0**

- **-5**

- **-10**

- **-15**

- **-20**

- **-25**

- **-30**

- **0**

- **-5**

- **-10**

- **-15**

- **-20**

- **-25**

- **-30**

- **0**

- **-5**

- **-10**

- **-15**

- **-20**

- **-25**

- **-30**

- **0**